

SEQUENCE LISTING

<110>	Zebedee, Suzanne Inchauspe, Genevieve Nasoff, Marc S. Prince, Alfred M.
<120>	METHODS AND SYSTEMS FOR PRODUCING RECOMBINANT VIRAL ANTIGENS
<130>	323-100USD
<140> <141>	10/677,956 2003-10-01
<150> <151>	08/931,855 1997-09-16
<150> <151>	08/563,733 1995-11-08
<150> <151>	08/272,271 1994-07-08
<150> <151>	07/616,369 1990-11-21
<150> <151>	07/573,643 1990-08-27
<160>	76
<170>	PatentIn version 3.3
<210> <211> <212> <213>	1 795 DNA Human immunodeficiency virus
<220> <221> <222>	CDS (16)(789)
<400> aggagg	1 gttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta 51 Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val 1 5 10
	g gcc ata tca cct aga act tta aat gca tgg gta aaa gta gta 99 n Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val 15 20 25
gaa ga Glu Gl 30	g aag gct ttc agc cca gaa gtg ata ccc atg ttt tca gca tta 147 u Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu 35 40
	a gga gcc acc cca caa gat tta aac acc atg cta aac aca gtg u Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val 50 55 60
999 99	a cat caa gca gcc atg caa atg tta aaa gag acc atc aat gag 243 Page 1

16988 ST25.txt Gly Gly His Gln Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu 65 70 75	
gaa gct gca gaa tgg gat aga gtg cat cca gtg cat gca ggg cct att Glu Ala Ala Glu Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile 80 85 90	291
gca cca ggc cag atg aga gaa cca agg gga agt gac ata gca gga act Ala Pro Gly Gln Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr 95 100 105	339
act agt acc ctt cag gaa caa ata gga tgg atg aca aat aat cca cct Thr Ser Thr Leu Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro 110 115 120	387
atc cca gta gga gaa att tat aaa aga tgg ata atc ctg gga tta aat Ile Pro Val Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn 125 130 135 140	435
aaa ata gta aga atg tat agc cct acc agc att ctg gac ata aga caa Lys Ile Val Arg Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln 145 150 155	483
gga cca aag gaa ccc ttt aga gac tat gta gac cgg ttc tat aaa act Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr 160 165 170	531
cta aga gcc gag caa gct tca cag gag gta aaa aat tgg atg aca gaa Leu Arg Ala Glu Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu 175 180 185	579
acc ttg ttg gtc caa aat gcg aac cca gat tgt aag act att tta aaa Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys 190 195 200	627
gca ttg gga cca gcg gct aca cta gaa gaa atg atg aca gca tgt cag Ala Leu Gly Pro Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln 205 210 215	675
gga gta gga gga ccc aaa aat caa caa tta tta tcc tta tgg ggg tgt Gly Val Gly Gly Pro Lys Asn Gln Gln Leu Leu Ser Leu Trp Gly Cys 235 230 235	723
aaa ggg aaa ctt gtt tgt tat act tcc gtt aaa tgg aat gga ccc ggc Lys Gly Lys Leu Val Cys Tyr Thr Ser Val Lys Trp Asn Gly Pro Gly 240 245 250	771
cat aag gca aga gtt ttg taataa His Lys Ala Arg Val Leu 255	795
<210> 2 <211> 258 <212> PRT <213> Human immunodeficiency virus	
<400> 2	
Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val His Gln Ala Ile 1 5 10 15	

Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu Glu Lys Ala 20 25 30 Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala 35 40 45 Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln 50 55 60 Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu 65 70 75 80 Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln 85 90 95 Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu 100 105 110Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu 145 150 155 160 Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu 165 170 175 Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro 195 200 205 Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly 210 220 Pro Lys Asn Gln Gln Leu Leu Ser Leu Trp Gly Cys Lys Gly Lys Leu 225 230 235 240 Val Cys Tyr Thr Ser Val Lys Trp Asn Gly Pro Gly His Lys Ala Arg 245 250 255 Val Leu

Page 3

<210 <211 <212 <213	>	3 795 DNA Humar	ı imn	nunoc	defic	ieno	y vi	rus								
<220 <221 <222	L> (CDS (16).	. (78	39)												
	:400> 3 Iggagggttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val 1 5 10 Tat cag gcc ata tca cct aga act tta aat gca tgg gta aaa gta gta															51
							act Thr 20									99
gaa Glu	gag Glu 30	aag Lys	gct Ala	ttc Phe	agc Ser	cca Pro 35	gaa Glu	gtg Val	ata Ile	ccc Pro	atg Met 40	ttt Phe	tca Ser	gca Ala	tta Leu	147
							gat Asp									195
ggg Gly	gga Gly	cat His	caa Gln	gca Ala 65	gcc Ala	atg Met	caa Gln	atg Met	tta Leu 70	aaa Lys	gag Glu	acc Thr	atc Ile	aat Asn 75	gag Glu	243
gaa Glu	gct Ala	gca Ala	gaa Glu 80	tgg Trp	gat Asp	aga Arg	gtg Val	cat His 85	cca Pro	gtg Val	cat His	gca Ala	ggg Gly 90	cct Pro	att Ile	291
gca Ala	cca Pro	ggc Gly 95	cag Gln	atg Met	aga Arg	gaa Glu	cca Pro 100	agg Arg	gga Gly	agt Ser	gac Asp	ata Ile 105	gca Ala	gga Gly	act Thr	339
act Thr	agt Ser 110	acc Thr	ctt Leu	cag Gln	gaa Glu	caa Gln 115	ata Ile	gga Gly	tgg Trp	atg Met	aca Thr 120	aat Asn	aat Asn	cca Pro	cct Pro	387
atc Ile 125	cca Pro	gta Val	gga Gly	gaa Glu	att Ile 130	tat Tyr	aaa Lys	aga Arg	tgg Trp	ata Ile 135	atc Ile	ctg Leu	gga Gly	tta Leu	aat Asn 140	435
							cct Pro									483
gga Gly	cca Pro	aag Lys	gaa Glu 160	ccc Pro	ttt Phe	aga Arg	gac Asp	tat Tyr 165	gta Val	gac Asp	cgg Arg	ttc Phe	tat Tyr 170	aaa Lys	act Thr	531
cta Leu	aga Arg	gcc Ala 175	gag Glu	caa Gln	gct Ala	tca Ser	cag Gln 180	gag Glu	gta Val	aaa Lys	aat Asn	tgg Trp 185	atg Met	aca Thr	gaa Glu	579
							aac Asn		Asp		Lys 200					627

gca ttg gga cca gcg gct aca cta gaa gaa atg atg aca gca tgt cag Ala Leu Gly Pro Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln 205 210 215 220	675													
gga gta gga gga ccc aaa aat caa caa aga tta aat tta tgg ggg tgt Gly Val Gly Gly Pro Lys Asn Gln Gln Arg Leu Asn Leu Trp Gly Cys 225 230 235	723													
aaa ggg aaa ctt att tgt tat act tcc gtt aaa tgg aat gga ccc ggc Lys Gly Lys Leu Ile Cys Tyr Thr Ser Val Lys Trp Asn Gly Pro Gly 240 245 250	771													
cat aag gca aga gtt ttg taataa His Lys Ala Arg Val Leu 255	795													
<210> 4 <211> 258 <212> PRT <213> Human immunodeficiency virus														
<400> 4														
Met Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val His Gln Ala Ile 1 10 15														
Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu Glu Lys Ala 20 25 30														
Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala 35 40 45														
Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln 50 60														
Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu 65 70 75 80														
Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln 85 90 95														
Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu 100 105 110														
Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly 115 120 125														
Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg 130 135 140														
Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu 145 150 155 160 Page 5														

Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu 165 170 175	
Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val 180 185 190	
Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro 195 200 205	
Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly Gly 210 220	
Pro Lys Asn Gln Gln Arg Leu Asn Leu Trp Gly Cys Lys Gly Lys Leu 225 230 235 240	
Ile Cys Tyr Thr Ser Val Lys Trp Asn Gly Pro Gly His Lys Ala Arg 245 250 255	
Val Leu	
<210> 5 <211> 795 <212> DNA <213> Human immunodeficiency virus	
<220> <221> CDS <222> (16)(789)	
<pre><400> 5 aggagggttt ttcat atg cca atc gtg cag aac atc cag ggg caa atg gta</pre>	51
cat cag gcc ata tca cct aga act tta aat gca tgg gta aaa gta gta His Gln Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val 15 20 25	99
gaa gag aag gct ttc agc cca gaa gtg ata ccc atg ttt tca gca tta Glu Glu Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu 30 35 40	147
tca gaa gga gcc acc cca caa gat tta aac acc atg cta aac aca gtg Ser Glu Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val 45 50 55 60	195
ggg gga cat caa gca gcc atg caa atg tta aaa gag acc atc aat gag Gly Gly His Gln Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu 65 70 75	243
gaa gct gca gaa tgg gat aga gtg cat cca gtg cat gca ggg cct att Glu Ala Ala Glu Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Page 6	291

90

gca Ala	cca Pro	ggc Gly 95	cag Gln	atg Met	aga Arg	gaa Glu	cca Pro 100	agg Arg	gga Gly	agt Ser	gac Asp	ata Ile 105	gca Ala	gga Gly	act Thr	339
act Thr	agt Ser 110	acc Thr	ctt Leu	cag Gln	gaa Glu	caa Gln 115	ata Ile	gga Gly	tgg Trp	atg Met	aca Thr 120	aat Asn	aat Asn	cca Pro	cct Pro	387
atc Ile 125	cca Pro	gta Val	gga Gly	gaa Glu	att Ile 130	tat Tyr	aaa Lys	aga Arg	tgg Trp	ata Ile 135	atc Ile	ctg Leu	gga Gly	tta Leu	aat Asn 140	435
	ata Ile															483
gga Gly	cca Pro	aag Lys	gaa Glu 160	ccc Pro	ttt Phe	aga Arg	gac Asp	tat Tyr 165	gta Val	gac Asp	cgg Arg	ttc Phe	tat Tyr 170	aaa Lys	act Thr	531
cta Leu	aga Arg	gcc Ala 175	gag Glu	caa Gln	gct Ala	tca Ser	cag Gln 180	gag Glu	gta Val	aaa Lys	aat Asn	tgg Trp 185	atg Met	aca Thr	gaa Glu	579
acc Thr	ttg Leu 190	ttg Leu	gtc Val	caa Gln	aat Asn	gcg Ala 195	aac Asn	cca Pro	gat Asp	tgt Cys	aag Lys 200	act Thr	att Ile	tta Leu	aaa Lys	627
gca Ala 205	ttg Leu	gga Gly	cca Pro	gcg Ala	gct Ala 210	aca Thr	cta Leu	gaa Glu	gaa Glu	atg Met 215	atg Met	aca Thr	gca Ala	tgt Cys	cag Gln 220	675
gga Gly	gta Val	gga Gly	gga Gly	cca Pro 225	caa Gln	aat Asn	caa Gln	caa Gln	ctt Leu 230	tta Leu	aat Asn	tta Leu	tgg Trp	ggg Gly 235	tgt Cys	723
aga Arg	ggg Gly	aaa Lys	gct Ala 240	att Ile	tgt Cys	tat Tyr	act Thr	tcc Ser 245	gtt val	caa Gln	tgg Trp	aat Asn	gga Gly 250	ccc Pro	ggc Gly	771
cat His	aag Lys	gca Ala 255	aga Arg	gtt val	ttg Leu	taat	taa									795
<21 <21 <21 <21	1>	6 258 PRT Humar	ı imr	muno	defic	cienc	cy vi	irus								
<40	0> (6														
Met 1	Pro	Ile	٧a٦	Gln 5	Asn	Ile	Gln	Gly	Gln 10	Met	٧a٦	His	Gln	Ala 15	Ile	
Ser	Pro	Arg	Thr 20	Leu	Asn	Ala	Trp	va1 25	Lys	val	val	Glu	Glu 30	Lys	Ala	

Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala Page 7

35

Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln 50 55 60

40

Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu 65 70 75 80

Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln 85 90 95

Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu $100 \hspace{1cm} 105 \hspace{1cm} 110$

Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly
115 120 125

Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg 130 135 140

Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu 145 150 155 160

Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu 165 170 175

Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val 180 185 190

Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro 195 200 205

Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly 210 215 220

Pro Gln Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Arg Gly Lys Ala 225 230 235 240

Ile Cys Tyr Thr Ser Val Gln Trp Asn Gly Pro Gly His Lys Ala Arg 245 250 255

Val Leu

<210> 7

<211> 378

<212> DNA

<213> Hepatitis C virus

<220> <221> CDS <222> (16)(375)	
<pre><400> 7 aggagggttt ttcat atg agc acg aat cct aaa cct caa aga aaa acc aaa</pre>	51
cgt aac acc aac cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly 15 20 25	99
cag atc gtt ggt gga gtt tac ttg ttg ccg cgc agg ggc cct aga ttg Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu 30 35 40	147
ggt gtg cgc gcg acg agg aag act tcc gag cgg tcg caa cct cga ggt Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly 45 50 55 60	195
aga cgt cag cct atc ccc aag gtg cgt cgg ccg gag ggc agg acc tgg Arg Arg Gln Pro Ile Pro Lys Val Arg Arg Pro Glu Gly Arg Thr Trp 65 70 75	243
gct cag ccc ggg tac cct tgg ccc ctc tat ggc aat gag ggt tgc ggg Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly 80 85 90	291
tgg gcg gga tgg ctc ctg tct ccc cgt ggc tct cgg cct agc tgg ggc Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly 95 100 105	339
ccc aca gac ccc cgg cgt agg tcg cgc aat ttg ggt taa Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu Gly 110 115 120	378
<210> 8 <211> 120 <212> PRT <213> Hepatitis C virus	
<400> 8	
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn 1 5 10 15	
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly 20 25 30	
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala 35 40 45	
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 60	

16988 ST29 Ile Pro Lys Val Arg Arg Pro Glu Gly Arg Thr 65 70 75	5.txt Trp Ala Gln Pro Gly 80											
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys o	Gly Trp Ala Gly Trp 95											
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp (Gly Pro Thr Asp Pro 110											
Arg Arg Arg Ser Arg Asn Leu Gly 115 120												
<210> 9 <211> 378 <212> DNA <213> Hepatitis C virus												
<220> <221> CDS <222> (16)(378)												
<pre><400> 9 aggagggttt ttcat atg agc acg aat cct aaa cct</pre>												
cgt aac acc aac cgt cgc cca cag gac gtc aag Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys 15 20												
cag atc gtt ggt gga gtt tac ttg ttg ccg cgc a Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg 30 35	agg ggc cct aga ttg 147 Arg Gly Pro Arg Leu 40											
ggt gtg cgc gcg acg agg aag act tcc gag cgg Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg 45 50 55	tcg caa cct cga ggt 195 Ser Gln Pro Arg Gly 60											
aga cgt cag cct atc ccc aag gca cgt cgg ccc arg Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro 65 70	gag ggc agg acc tgg 243 Glu Gly Arg Thr Trp 75											
gct cag ccc ggg tac cct tgg ccc ctc tat ggc a Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly a 80 85												
tgg gcg gga tgg ctc ctg tct ccc cgt ggc tct c Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser 7 95												
ccc aca gac ccc cgg cgt agg tcg cgc aat ttg Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu 110												
<210> 10 <211> 120 <212> PRT												

<213> Hepatitis C virus <400> 10 Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn 1 5 10 15 Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30 Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
45
45 Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 55 60 Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp 85 90 95 Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu Gly 115 120 <210> 11 378 <211> <212> DNA <213> Hepatitis C virus <220> <221> CDS <222> (16)..(375)<400> 11 aggagggttt ttcat atg agc acg aat cct aaa cct caa aga aaa acc aaa
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys
1 5 10 51 cgt aac acc aac cgt cgc cca cag gac gtc aag ttc ccg ggt ggc ggt Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly 15 20 25 99 147 195 ggt gtg cgc gcg acg agg aag act tcc gag cgg tcg caa cct cga ggt Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly
45 50 55 60

aga cgt cag cct atc ccc aag gac cgt cgc Arg Arg Gln Pro Ile Pro Lys Asp Arg Arg 65 70	88 ST25.txt g tcc acg ggc aag tcc tgg 243 g Ser Thr Gly Lys Ser Trp 75
ggt aag ccc ggg tac cct tgg ccc ctc tat Gly Lys Pro Gly Tyr Pro Trp Pro Leu Tyr 80 85	t ggc aat gag ggt tgc ggg 291 r Gly Asn Glu Gly Cys Gly 90
tgg gcg gga tgg ctc ctg tct ccc cgt ggc Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly 95 100	c tct cgg cct agc tgg ggc 339 y Ser Arg Pro Ser Trp Gly 105
ccc aca gac ccc cgg cgt agg tcg cgc aat Pro Thr Asp Pro Arg Arg Arg Ser Arg Asr 110	
<210> 12 <211> 120 <212> PRT <213> Hepatitis C virus	
<400> 12	
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys	s Thr Lys Arg Asn Thr Asn 15
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly 20 25	y Gly Gly Gln Ile Val Gly 30
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro 35 40	o Arg Leu Gly Val Arg Ala 45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro 50 55	o Arg Gly Arg Arg Gln Pro 60
Ile Pro Lys Asp Arg Arg Ser Thr Gly Lys 65 70	s Ser Trp Gly Lys Pro Gly 75 80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly 85 90	y Cys Gly Trp Ala Gly Trp 95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser 100 105	r Trp Gly Pro Thr Asp Pro 110
Arg Arg Arg Ser Arg Asn Leu Gly 115 120	
<210> 13 <211> 378 <212> DNA <213> Hepatitis C virus	
<220>	Page 12

<221 <222		DS (16) .	. (37	'5)												
<400 agga	-	i3 Ett 1	tcat												aaa Lys	51
					cgc Arg											99
cag Gln	atc Ile 30	gtt Val	ggt Gly	gga Gly	gtt Val	tac Tyr 35	ttg Leu	ttg Leu	ccg Pro	cgc Arg	agg Arg 40	ggc Gly	cct Pro	aga Arg	ttg Leu	147
					agg Arg 50											195
					ccc Pro											243
					cct Pro											291
					ctg Leu											339
					cgt Arg							taa				378
<210> 14 <211> 120 <212> PRT <213> Hepatitis C virus																
<400)> :	14														
Met 1	Ser	Thr	Asn	Pro 5	Lys	Pro	Gln	Arg	Lys 10	Thr	Lys	Arg	Asn	Thr 15	Asn	
Arg	Arg	Pro	G]n 20	Asp	val	Lys	Phe	Pro 25	Gly	Gly	Gly	Gln	Ile 30	val	Gly	
Gly	٧a٦	Tyr 35	Leu	Leu	Pro	Arg	Arg 40	Gly	Pro	Arg	Leu	Gly 45	٧a٦	Arg	Ala	
Thr	Arg 50	Lys	Thr	Ser	Glu	Arg 55	Ser	Gln	Pro	Arg	G]y 60	Arg	Arg	Gln	Pro	
Ile 65	Pro	Lys	Ala	Arg	Arg 70	Ser	Glu	Gly	Arg	Ser 75	Trp	Ala	Gln	Pro	Gly 80	

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp

85 90 95													
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro 100 105 110													
Arg Arg Arg Ser Arg Asn Leu Gly 115 120													
<210> 15 <211> 381 <212> DNA <213> Hepatitis C virus													
<220> <221> CDS <222> (16)(378)													
<pre><400> 15 aggagggttt ttcat atg cct att cat cat cat cat cat ggc ccg ggc 51</pre>													
tcc gtc act gtg tcc cat cct aac atc gag gag gtt gct ctg tcc acc 99 Ser Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr 15 20 25													
acc gga gag atc ccc ttt tac ggc aag gct atc ccc ctc gag gtg atc Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile 30 35 40													
aag ggg gga aga cat ctc atc ttc tgc cac tca aag aag aag tgc gac Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp 45 50 55 60													
gag ctc gcc gcg aag ctg gtc gca ttg ggc atc aat gcc gtg gcc tac 243 Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr 65 70 75													
tac cgc ggt ctt gac gtg tct gtc atc ccg acc agc ggc gat gtt gtc 291 Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val 80 85 90													
gtc gtg tca acc gat gct ctc atg act ggc ttt acc ggc gac ttc gac Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp 95 100 105													
tcg gtg ata gac tgc aat acg ggt acc gag ctc gaa ttc taa 381 Ser Val Ile Asp Cys Asn Thr Gly Thr Glu Leu Glu Phe 110 115 120													
<210> 16 <211> 121 <212> PRT <213> Hepatitis C virus													

<400> 16

met 1	Pro	TIE	нтѕ	н1 S 5	HIS	HIS	HIS	HIS	10	Pro	GIY	Ser	Vai	Thr 15	Val	
Ser	His	Pro	Asn 20	Ile	Glu	Glu	۷al	Ala 25	Leu	Ser	Thr	Thr	G]y 30	Glu	Ile	
Pro	Phe	Tyr 35	Gly	Lys	Ala	Ile	Pro 40	Leu	Glu	٧a٦	Ile	Lys 45	Gly	Gly	Arg	
His	Leu 50	Ile	Phe	Cys	ніѕ	Ser 55	Lys	Lys	Lys	Cys	Asp 60	Glu	Leu	Ala	Ala	
Lys 65	Leu	val	Ala	Leu	Gly 70	Ile	Asn	Ala	۷al	Ala 75	Tyr	Tyr	Arg	Gly	Leu 80	
Asp	val	Ser	val	Ile 85	Pro	Thr	Ser	Gly	Asp 90	val	val	val	val	Ser 95	Thr	
Asp	Ala	Leu	Met 100	Thr	Gly	Phe	Thr	Gly 105	Asp	Phe	Asp	Ser	val 110	Ile	Asp	
Cys	Asn	Thr 115	Gly	Thr	Glu	Leu	Glu 120	Phe								
<210 <211 <212 <213	L> 7 2> 0	L7 774 DNA Hepat	titis	5 C \	/irus	5										
<220 <221 <222	Ĺ> (DS (16).	(77	71)												
<400 agga		L7 Ett t	tcat	ato Mei 1	g tco t Ser	cct Pro	ata o Ile	a cta e Lei 5	a ggt u Gly	t tai	t tgg r Trp	g aaa D Lys	a atr	t aag e Lys	g ggc s Gly	51
ctt Leu	gtg Val	caa Gln 15	ccc Pro	act Thr	cga Arg	ctt Leu	ctt Leu 20	ttg Leu	gaa Glu	tat Tyr	ctt Leu	gaa Glu 25	gaa Glu	aaa Lys	tat Tyr	99
								gaa Glu								147
aag Lys 45	ttt Phe	gaa Glu	ttg Leu	ggt Gly	ttg Leu 50	gag Glu	ttt Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	195
ggt Gly	gat Asp	gtt Val	aaa Lys	tta Leu 65	aca Thr	cag Gln	tct Ser	atg Met	Ā1a 70	atc Ile age	Ile	cgt Arg	tat Tyr	ata Ile 75	gct Ala	243
									-	- J	-					

gac aag cac aac atg ttg ggt ggt tgt cca aaa gag cgt gca gag att 29 Asp Lys His Asn Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile 80 85 90)1
tca atg ctt gaa gga gcg gtt ttg gat att aga tac ggt gtt tcg aga 33 Ser Met Leu Glu Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg 95 100 105	39
att gca tat agt aaa gac ttt gaa act ctc aaa gtt gat ttt ctt agc 38 Ile Ala Tyr Ser Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser 110 115 120	37
aag cta cct gaa atg ctg aaa atg ttc gaa gat cgt tta tgt cat aaa 43 Lys Leu Pro Glu Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys 125 130 135 140	3 5
aca tat tta aat ggt gat cat gta acc cat cct gac ttc atg ttg tat Thr Tyr Leu Asn Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr 145 150 155	33
gac gct ctt gat gtt gtt tta tac atg gac cca atg tgc ctg gat gcg Asp Ala Leu Asp Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala 160 165 170	31
ttc cca aaa tta gtt tgt ttt aaa aaa cgt att gaa gct atc cca caa 57 Phe Pro Lys Leu Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln 175 180 185	79
att gat aag tac ttg aaa tcc agc aag tat ata gca tgg cct ttg cag 62 Ile Asp Lys Tyr Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln 190 195 200	27
ggc tgg caa gcc acg ttt ggt ggt ggc gac cat cct cca aaa tcg gat 67 Gly Trp Gln Ala Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp 205 210 215 220	75
ctg gtt ccg cgt gga tcc gac gtc aag ttc ccg ggt ggc ggt cag atc Leu Val Pro Arg Gly Ser Asp Val Lys Phe Pro Gly Gly Gly Gln Ile 225 230 235	23
gtt ggt gga gtt tac ttg ttg ccg cgc agg gaa ttc atc gtg act gac 77 Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Glu Phe Ile Val Thr Asp 240 245 250	71
tga 77	74
<210> 18 <211> 252 <212> PRT <213> Hepatitis C virus	
<400> 18	
Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro 1 5 10 15	

Page 16

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu $20 \\ 25 \\ 30$

16988 ST25.txt Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205

Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220

Gly Ser Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val 225 230 235 240

Tyr Leu Leu Pro Arg Arg Glu Phe Ile Val Thr Asp 245 250

<210> 19

<211> 31

<212> DNA

<213> Artificial

<220>

synthetic oligonucleotide

<400> ccaaaa	19 ttac catatgccaa tcgtgcagaa	c .	31
<210> <211> <212> <213>	20 33 DNA Artificial		
<220> <223>	synthetic oligonucleotide		
<400> gacccg	20 gcca taaggcaaga gttttgtaat	aag	33
<210> <211> <212> <213>	21 34 DNA Artificial		
<220> <223>	synthetic oligonucleotide		
<400> gatcct	21 tatt acaaaactct tgccttatgg	ccgg	34
<210> <211> <212> <213>	22 28 DNA Artificial		
<220> <223>	synthetic oligonucleotide		
<400> gctcgc	22 atat gagcacgatt cccaaacc		28
<210> <211> <212> <213>	23 32 DNA Artificial		
<220> <223>	synthetic oligonucleotide		
<400> gacgaa	23 ttct taacccaaat tgcgcgacct	ac	32
<210> <211> <212> <213>	24 66 DNA Artificial		
<220> <223>	synthetic oligonucleotide		
<400> gatccg	24 acgt caagttcccg ggtggcggtc	agatcgttgg tggagtttac ttgttgccgc Page 18	60

gcaggg		66
<210> <211> <212> <213>	25 66 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400>	25 ctgc gcggcaacaa gtaaactcca ccaacgatct gaccgccacc cgggaacttg	60
acgtcg	•	66
<210> <211> <212> <213>	26 28 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> ggaatte	26 ccat atgtccccta tactaggt	28
<210> <211> <212> <213>	27 26 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
	27 tctc acctgcgcgg caacaa	26
<210> <211> <212> <213>	28 52 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> tatgcc	28 tatt catcatcatc atcatcatgg cccgggaatt ctaagtaagt ag	52
<210> <211> <212> <213>	29 54 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400×	29	

Page 19

caa gtg cgc aa Gln Val Arg Ası 195	tcc tcg ggg Ser Ser Gly	16988 ST ctt tac cat gtc Leu Tyr His Val 200	acc aat gat	tgc cct 624 Cys Pro										
aac tcg agt gti	gtg tac gag Val Tyr Glu 215	gcg gcc gat gcc Ala Ala Asp Ala	atc ctg cac	act ccg 672 Thr Pro										
ggg tgt gtc cci Gly Cys Val Pro 225	tgc gtt cgc Cys Val Arg 230	gag ggt aac gcc Glu Gly Asn Ala 235	tcg agg tgt Ser Arg Cys	tgg gtg 720 Trp Val 240										
gcg gtg acc ccc Ala Val Thr Pro	acg gtg gcc Thr Val Ala 245	acc agg gac ggc Thr Arg Asp Gly 250	aaa ctt ccc Lys Leu Pro	aca acg 768 Thr Thr 255										
cag ctt cga cg Gln Leu Arg Arg 260	His Ile Asp	ctg ctt gtc ggg Leu Leu Val Gly 265	agc gcc acc Ser Ala Thr 270	ctc tgc 816 Leu Cys										
tcg gcc ctc tac Ser Ala Leu Tyi 275	gtg ggg gac Val Gly Asp	ctg tgc ggg tct Leu Cys Gly Ser 280	gtc ttt ctc Val Phe Leu 285	gtt ggt 864 Val Gly										
caa ctg ttt acc Gln Leu Phe Thi 290	ttc tct ccc Phe Ser Pro 295	agg cgc cac tgg Arg Arg His Trp	acg acg caa Thr Thr Gln 300	gac tgc 912 Asp Cys										
aat tgt tct ato Asn Cys Ser Ilo 305	tat ccc ggc Tyr Pro Gly 310	cat ata acg ggt His Ile Thr Gly 315	cat cgc atg His Arg Met	gca tgg 960 Ala Trp 320										
gat atg atg atg Asp Met Met Met				978										
<210> 31 <211> 948 <212> DNA <213> Artific	<210> 31 <211> 948 <212> DNA													
glutathi	<220>													
<220> <221> CDS <222> (1)(94	15)													
<400> 31 atg tcc cct ata Met Ser Pro Ile 1	cta ggt tat Leu Gly Tyr 5	tgg aaa att aag Trp Lys Ile Lys 10	ggc ctt gtg Gly Leu Val	caa ccc 48 Gln Pro 15										
act cga ctt ctt Thr Arg Leu Leu 20	ttg gaa tat Leu Glu Tyr	ctt gaa gaa aaa Leu Glu Glu Lys 25	tat gaa gag Tyr Glu Glu 30	cat ttg 96 His Leu										
tat gag cgc gat Tyr Glu Arg Asp 35	gaa ggt gat Glu Gly Asp	aaa tgg cga aac Lys Trp Arg Asn 40 Page	Lys Lys Phe 45	gaa ttg 144 Glu Leu										

ggt Gly	ttg Leu 50	gag Glu	ttt Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	ggt Gly	gat Asp	gtt Val	aaa Lys	192
					gcc Ala 70											240
atg Met	ttg Leu	ggt Gly	ggt Gly	tgt Cys 85	cca Pro	aaa Lys	gag Glu	cgt Arg	gca Ala 90	gag Glu	att Ile	tca Ser	atg Met	ctt Leu 95	gaa Glu	288
					att Ile											336
aaa Lys	gac Asp	ttt Phe 115	gaa Glu	act Thr	ctc Leu	aaa Lys	gtt Val 120	gat Asp	ttt Phe	ctt Leu	agc Ser	aag Lys 125	cta Leu	cct Pro	gaa Glu	384
					gaa Glu											432
					cat His 150											480
					gac Asp											528
gtt Val	tgt Cys	ttt Phe	aaa Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	atc Ile	cca Pro	caa Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576
					tat Tyr											624
acg Thr	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	ctg Leu	atc Ile	gaa Glu	ggt Gly	672
cgt Arg 225	ggg Gly	atc Ile	ccc Pro	aat Asn	tcg Ser 230	agc Ser	tcg Ser	gta val	ccc Pro	atg Met 235	agc Ser	acg Thr	att Ile	ccc Pro	aaa Lys 240	720
					aaa Lys											768
aag Lys	ttc Phe	ccg Pro	ggt Gly 260	ggc Gly	ggt Gly	cag Gln	atc Ile	gtt Val 265	ggt Gly	gga Gly	gtt val	tac Tyr	ttg Leu 270	ttg Leu	ccg Pro	816
cgc Arg	agg Arg	ggc Gly 275	cct Pro	aga Arg	ttg Leu	ggt Gly	gtg Val 280	cgc Arg	gcg Ala	acg Thr	agg Arg	aag Lys 285	act Thr	tcc Ser	gag Glu	864
					ggt Gly				Pro		Pro					912

<213>

<220>

<223>

Artificial

synthetic oligonucleotide

<400> tgggta	36 aggt catcgatac	19
	37 17 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> aaggtc	37 atcg ataccct	17
<210> <211> <212> <213>	38 18 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> agatag	38 agaa agagcaac	18
	39 22 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> ggacca	39 gttc atcatcatat at	22
<211> <212>	40 20 DNA Artificial	
<220> <223>	synthetic oligonucleotide	
<400> cagttc	40 atca tcatatccca	20
<210> <211> <212> <213>	41 5 PRT Artificial	
<220> <223>	Synthetic Construct	
<400>	41	

```
16988 ST25.txt
Gly Ile Pro Asn Ser
<210>
       42
       15
<211>
<211> 15
<212> DNA
<213> Artificial
<220>
<223> Codes for linker protein in GST-NANBV 693-691
<220>
<221> CDS
<222> (1)..(15)
<400> 42
ggg atc ccc aat tca
Gly Ile Pro Asn Ser
                                                                               15
<210> 43
<211> 3
<212> PRT
<213> Artificial
<220>
<223>
       Carboxy-terminal linker protein in GST-NANBV 693-691
<400> 43
Asn Ser Ser
<210> 44
<211> 12
<212> DNA
<213> Artificial
<220>
<223> Codes for carboxy-terminal linker protein in GST-NANBV 693-691
<220>
<221>
      CDS
<222> (1)..(9)
<400> 44
                                                                               12
aat tca tcg tga
Asn Ser Ser
<210> 45
<211> 9
<212> PRT
<213> Artificial
<220>
<223> Linker protein in GST-NANBV 15-18
                                           Page 25
```

```
<400> 45
Gly Ile Pro Ile Glu Phe Leu Gln Pro
<210>
      46
       27
<211>
<212> DNA
<213>
      Artificial
<220>
<221>
       CDS
<222>
       (1)..(27)
<223>
       Codes for linker protein in GST-NANBV 15-18
<400> 46
ggg atc ccc atc gaa ttc ctg cag ccc Gly Ile Pro Ile Glu Phe Leu Gln Pro
                                                                               27
<210>
       47
<211> 7
<212> PRT
<213> Artificial
<220>
<223>
       Carboxy-terminal linker protein in GST-NANBV 15-18
<400> 47
Trp Gly Ile Gly Asn Ser Ser 1
<210> 48
<211> 24
<212> DNA
<213> Artificial
<220>
<223> Codes for carboxy-terminal linker protein in GST-NANBV 15-18
<220>
<221>
       CDS
<222>
       (1)..(21)
<400> 48
tgg ggg atc ggg aat tca tcg tga
Trp Gly Ile Gly Asn Ser Ser
1
                                                                               24
<210> 49
<211> 8
<212>
       PRT
       Artificial
<213>
<220>
<223> Linker protein in GST-NANBV 15-17
                                           Page 26
```

```
<400> 49
Gly Ile Pro Asn Ser Cys Ser Pro
<210> 50
<211> 24
<212> DNA
<213> Artificial
<220>
<223> Codes for linker protein in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(24)
<400> 50
ggg atc ccc aat tcc tgc agc cct
Gly Ile Pro Asn Ser Cys Ser Pro
1 5
                                                                                    24
<210> 51
<211> 6
<212> PRT
<213> Artificial
<220>
        Carboxy-terminal linker protein in GST-NANBV 15-17
<223>
<400> 51
Gly Ile Gly Asn Ser Ser 1
<210> 52
<211> 21
<212> DNA
<213> Artificial
<220>
       Codes for carboxy-terminal linker protein in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(18)
<400> 52
ggg atc ggg aat tca tcg tga
Gly Ile Gly Asn Ser Ser
1
                                                                                    21
<210> 53
<211> 5
<212> PRT
<213> Artificial
```

Page 27

```
<223>
       Thrombin cleavage site in GST-NANBV 15-17
<400> 53
Val Pro Arg Gly Ser
<210> 54
<211> 15
<212> DNA
<213> Artificial
<220>
       Codes for thrombin cleavage site in GST-NANBV 15-17
<220>
<221> CDS
<222> (1)..(15)
<400> 54
gtt ccg cgt gga tcc
Val Pro Arg Gly Ser
1 5
                                                                                    15
<210> 55
<211> 7
<212> PRT
<213> Artificial
<220>
<223>
       Linker protein in GST-NANBV 15-17
<400> 55
Pro Ser Asn Ser Cys Ser Pro
1 5
<210> 56
<211> 21
<212> DNA
<213> Artificial
<220>
<223> Codes for linker protein in GST-NANBV 15-17
<220>
<221> CDS
<222>
       (1)..(21)
<400> 56
cca tcg aat tcc tgc agc cct
Pro Ser Asn Ser Cys Ser Pro
1 5
                                                                                    21
```

<210> 57

```
16988 ST25.txt
<211> 5
<212> PRT
<213> Artificial
<220>
<223>
      Carboxy-terminal linker protein in GST-NANBV 15-17
<400> 57
Gly Ile His Arg Asp
<210> 58
      18
<211>
<212>
      DNA
<213>
      Artificial
<220>
<223>
      Codes for carboxy-terminal linker protein in GST-NANBV 15-17
<220>
<221>
<222>
      CDS
      (1)..(15)
<400> 58
gga att cat cgt gac tga
                                                                          18
Gly Ile His Arg Asp
<210> 59
<211> 9
<212> PRT
<213> Artificial
<220>
<223>
      Linker protein in GST-NANBV 690-691
<400>
       59
Gly Ile Pro Asn Ser Ser Ser Val Pro 5
<210> 60
<211>
      27
<212> DNA
      Artificial
<213>
<220>
      Codes for linker protein in GST-NANBV 690-691
<220>
<221>
      CDS
<222>
      (1)..(27)
<400> 60
```

Page 29

27

ggg atc ccc aat tcg agc tcg gta ccc Gly Ile Pro Asn Ser Ser Ser Val Pro 1 5

```
<210>
       61
<211>
<212>
       PRT
<213>
      Artificial
<220>
<223>
       Carboxy-terminal linker protein in GST-NANBV 690-691
<400>
       61
Thr Gly Ile Gly Asn Ser Ser 1
<210>
       62
      24
<211>
<212>
      DNA
<213>
      Artificial
<220>
<223>
      Codes for carboxy-terminal linker protein in GST-NANBV 690-691
<220>
<221>
       CDS
<222>
       (1)..(21)
<400> 62
acg ggg atc ggg aat tca tcg tga
Thr Gly Ile Gly Asn Ser Ser
                                                                             24
<210> 63
<211>
<212>
      66
       DNA
<213>
      Artificial
<220>
      synthetic oligonucleotide
<223>
gatccatgag cacgattccc aaacctcaaa gaaaaaccaa acgtaacacc aaccgtcgcc
                                                                             60
cacagg
                                                                             66
<210>
<211>
       64
       66
<212>
      DNA
      Artificial
<213>
<220>
<223>
       synthetic oligonucleotide
<400> 64
aattcctgtg ggggacggtt ggtgttacgt ttggtttttc tttgaggttt gggaatcgtg
                                                                             60
ctcatg
                                                                             66
```

<211> 75 <212> DN															
gl	Codes for a fusion protein that includes sequences from glutathione-S-transferase, non-A, non-B hepatitis virus capsid antigen, and a thrombin cleavage site														
	(1)(756)														
<400> 65 atg tcc c Met Ser P 1	ct ata ro Ile	cta Leu 5	ggt Gly	tat Tyr	tgg Trp	aaa Lys	att Ile 10	aag Lys	ggc Gly	ctt Leu	gtg Val	caa Gln 15	CCC Pro	48	
act cga c Thr Arg L	tt ctt eu Leu 20	ttg Leu	gaa Glu	tat Tyr	ctt Leu	gaa Glu 25	gaa Glu	aaa Lys	tat Tyr	gaa Glu	gag Glu 30	cat His	ttg Leu	96	
tat gag c Tyr Glu A 3	rg Asp													144	
ggt ttg g Gly Leu G 50	ag ttt lu Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	ggt Gly	gat Asp	gtt Val	aaa Lys	192	
tta aca c Leu Thr G 65	ag tct In Ser	Met	gcc Ala 70	atc Ile	ata Ile	cgt Arg	tat Tyr	ata Ile 75	gct Ala	gac Asp	aag Lys	cac His	aac Asn 80	240	
atg ttg g Met Leu G	gt ggt ly Gly	tgt Cys 85	cca Pro	aaa Lys	gag Glu	cgt Arg	gca Ala 90	gag Glu	att Ile	tca Ser	atg Met	ctt Leu 95	gaa Glu	288	
gga gcg g Gly Ala V	tt ttg al Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336	
aaa gac t Lys Asp P 1	tt gaa he Glu 15	act Thr	ctc Leu	aaa Lys	gtt Val 120	gat Asp	ttt Phe	ctt Leu	agc Ser	aag Lys 125	cta Leu	cct Pro	gaa Glu	384	
atg ctg a Met Leu L 130														432	
ggt gat c Gly Asp H 145	at gta is Val	Thr	cat His 150	cct Pro	gac Asp	ttc Phe	atg Met	ttg Leu 155	tat Tyr	gac Asp	gct Ala	ctt Leu	gat Asp 160	480	
gtt gtt t Val Val L														528	
gtt tgt t Val Cys P	tt aaa he Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	Ile	cca Pro age	Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576	

ttg a Leu l	aaa _ys	tcc Ser 195	agc Ser	aag Lys	tat Tyr	ata Ile	gca Ala 200	tgg Trp	cct Pro	ttg Leu	cag Gln	ggc Gly 205	tgg Trp	caa Gln		624
acg t Thr F	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	ctg Leu	gtt val	ccg Pro	- 3 -	672
gga t Gly s 225																720
acc a Thr A	aac Asn	cgt Arg	cgc Arg	cca Pro 245	cag Gln	gaa Glu	ttc Phe	atc Ile	gtg Val 250	act Thr	gac Asp	tga				759
<210><211><211><212><213>	> (> [56 56 DNA Arti1	ficia	al												
<220> <223>		synth	netio	: ol	i gonı	ucled	otide	2								
<400> gatco		56 cgt d	caagt	ttcg	cg g	gtgg	cggto	c aga	atcgi	ttgg	tgga	agtt1	tac '	ttgt [.]	tgccgc	60
gcago	9 9															66
<210; <211; <212; <213;	> (> [67 66 DNA Artii	ficia	al												
<220; <223;		synth	netio	c o1 ⁻	i gonı	ucle	otide	2								
<400 aatt		67 tgc g	gcgg	caaca	aa g	taaa	ctcca	a cca	aacga	atct	gac	cgcc	acc	cggg	aacttg	60
acgto	cg															66
<210: <211: <212: <213:	> ; > [68 759 DNA Artii	ficia	al												
<220; <223;	> (aluta	athio	one-	S-tra	ansfo	rote erase oin e	e. no	on-A	. no	n-B	seqi nepa	uenc titi	es f s vi	rom rus capsic	i
<220: <221: <222:	> (CDS (1).	. (75	6)												
<400 atg 1 Met 5	> (tcc Ser	68 cct Pro	ata Ile	cta Leu	ggt Gly	tat Tyr	tgg Trp	aaa Lys		aag Lys age		ctt Leu	gtg Val	caa Gln	CCC Pro	48

1				5 .					16988 10	3 ST2	25.t	ĸŧ		15		
act Thr	cga Arg	ctt Leu	ctt Leu 20	ttg Leu	gaa Glu	tat Tyr	ctt Leu	gaa Glu 25	gaa Glu	aaa Lys	tat Tyr	gaa Glu	gag Glu 30	cat His	ttg Leu	96
					ggt Gly											144
ggt Gly	ttg Leu 50	gag Glu	ttt Phe	ccc Pro	aat Asn	ctt Leu 55	cct Pro	tat Tyr	tat Tyr	att Ile	gat Asp 60	ggt Gly	gat Asp	gtt val	aaa Lys	192
					gcc Ala 70											240
					cca Pro											288
gga Gly	gcg Ala	gtt Val	ttg Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336
					ctc Leu											384
atg Met	ctg Leu 130	aaa Lys	atg Met	ttc Phe	gaa Glu	gat Asp 135	cgt Arg	tta Leu	tgt Cys	cat His	aaa Lys 140	aca Thr	tat Tyr	tta Leu	aat Asn	432
					cat His 150											480
					gac Asp											528
gtt Val	tgt Cys	ttt Phe	aaa Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	atc Ile	cca Pro	caa Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576
ttg Leu	aaa Lys	tcc Ser 195	agc Ser	aag Lys	tat Tyr	ata Ile	gca Ala 200	tgg Trp	cct Pro	ttg Leu	cag Gln	ggc Gly 205	tgg Trp	caa Gln	gcc Ala	624
acg Thr	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	ctg Leu	gtt val	ccg Pro	cgt Arg	672
gga Gly 225	tcc Ser	gac Asp	gtc Val	aag Lys	ttc Phe 230	ccg Pro	ggt Gly	ggc Gly	ggt Gly	cag Gln 235	atc Ile	gtt val	ggt Gly	gga Gly	gtt Val 240	720
tac Tyr	ttg Leu	ttg Leu	ccg Pro	cgc Arg 245	agg Arg	gaa Glu	ttc Phe	atc Ile	gtg val 250	act Thr	gac Asp	tga				759

16988 ST25 tyt

240	16988 ST25.txt															
<210><211><212><213>		al														
<220> <223>			nucled	otide	<u>.</u>											
<400> gaatto	69 ttac ctgcgcggca acaagtaaac tc															
<210> <211> <212> <213>	32 DNA	32														
<220> <223>	synthetic oligonucleotide															
<400> gctgga	70 tcca gcacgattcc caaacctcaa ag															
<210> <211> <212> <213>	816	al														
<220> <223>	<220>															
<220> <221> <222>	CDS (1)(82	L 3)														
<400> atg to Met Se 1	71 cc cct ata er Pro Ile	cta go Leu G	it tat ly Tyr	tgg Trp	aaa Lys	att Ile 10	aag Lys	ggc Gly	ctt Leu	gtg Val	caa Gln 15	ccc Pro	48			
act co Thr Ai	ga ctt ctt rg Leu Lei 20	ttg ga Leu G	aa tat lu Tyr	ctt Leu	gaa Glu 25	gaa Glu	aaa Lys	tat Tyr	gaa Glu	gag Glu 30	cat His	ttg Leu	96			
tat ga Tyr Gl	ig cgc gat lu Arg Asp 35	gaa go Glu G	t gat ly Asp	aaa Lys 40	tgg Trp	cga Arg	aac Asn	aaa Lys	aag Lys 45	ttt Phe	gaa Glu	ttg Leu	144			
	g gag tti eu Glu Phe)												192			
	ca cag tci ir Gln Sei		la Ile										240			
atg ti Met Le	g ggt gg eu Gly Gly	tgt co Cys Pi 85	a aaa o Lys	gag Glu	cgt Arg	Ala 90	gag Glu age	Ile	tca Ser	atg Met	ctt Leu 95	gaa Glu	288			

gga Gly	gcg Ala	gtt Val	ttg Leu 100	gat Asp	att Ile	aga Arg	tac Tyr	ggt Gly 105	gtt Val	tcg Ser	aga Arg	att Ile	gca Ala 110	tat Tyr	agt Ser	336
aaa Lys	gac Asp	ttt Phe 115	gaa Glu	act Thr	ctc Leu	aaa Lys	gtt Val 120	gat Asp	ttt Phe	ctt Leu	agc Ser	aag Lys 125	cta Leu	cct Pro	gaa Glu	384
atg Met	ctg Leu 130	aaa Lys	atg Met	ttc Phe	gaa Glu	gat Asp 135	cgt Arg	tta Leu	tgt Cys	cat His	aaa Lys 140	aca Thr	tat Tyr	tta Leu	aat Asn	432
ggt Gly 145	gat Asp	cat His	gta Val	acc Thr	cat His 150	cct Pro	gac Asp	ttc Phe	atg Met	ttg Leu 155	tat Tyr	gac Asp	gct Ala	ctt Leu	gat Asp 160	480
	gtt Val															528
gtt Val	tgt Cys	ttt Phe	aaa Lys 180	aaa Lys	cgt Arg	att Ile	gaa Glu	gct Ala 185	atc Ile	cca Pro	caa Gln	att Ile	gat Asp 190	aag Lys	tac Tyr	576
ttg Leu	aaa Lys	tcc Ser 195	agc Ser	aag Lys	tat Tyr	ata Ile	gca Ala 200	tgg Trp	cct Pro	ttg Leu	cag Gln	ggc Gly 205	tgg Trp	caa Gln	gcc Ala	624
acg Thr	ttt Phe 210	ggt Gly	ggt Gly	ggc Gly	gac Asp	cat His 215	cct Pro	cca Pro	aaa Lys	tcg Ser	gat Asp 220	ctg Leu	gtt Val	ccg Pro	cgt Arg	672
gga Gly 225	tcc Ser	agc Ser	acg Thr	att Ile	ccc Pro 230	aaa Lys	cct Pro	caa Gln	aga Arg	aaa Lys 235	acc Thr	aaa Lys	cgt Arg	aac Asn	acc Thr 240	720
aac Asn	cgt Arg	cgc Arg	cca Pro	cag Gln 245	gac Asp	gtc Val	aag Lys	ttc Phe	ccg Pro 250	ggt Gly	ggc Gly	ggt Gly	cag Gln	atc Ile 255	gtt Val	768
ggt Gly	gga Gly	gtt Val	tac Tyr 260	ttg Leu	ttg Leu	ccg Pro	cgc Arg	agg Arg 265	gaa Glu	ttc Phe	atc Ile	gtg Val	act Thr 270	gac Asp	tga	816
<210 <211 <21	1> 2	72 271 PRT														

<220> <223> Synthetic Construct

<400> 72

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

<212> PRT <213> Artificial

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45 Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50 60 Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80 Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95 Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 \cdot 110Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125 Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140 Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160 Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175 Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190 Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205 Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 215 220 Gly Ser Ser Thr Ile Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr 225 230 235 240 Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val 245 250 255 Gly Gly Val Tyr Leu Leu Pro Arg Glu Phe Ile Val Thr Asp 260 265 270 <210> <211> 73 326

Page 36

<212> PRT

<213> non-A, non-B hepatitis virus

<400> 73

Met Ser Thr Ile Pro Lys Arg Gln Arg Lys Thr Lys Arg Asn Thr Asn $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly 20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro 50 55 60

Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly 65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp 85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro 100 105 110

Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys 115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu 130 140

Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp 145 150 155 160

Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile 165 170 175

Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr 180 185 190

Gln Val Arg Asn Ser Ser Gly Leu Tyr His Val Thr Asn Asp Cys Pro 195 200 205

Asn Ser Ser Val Val Tyr Glu Ala Ala Asp Ala Ile Leu His Thr Pro 210 215 220

Gly Cys Val Pro Cys Val Arg Glu Gly Asn Ala Ser Arg Cys Trp Val 225 230 235 240 Page 37

Ala Val Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro Thr Thr 245 250 255

Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser Ala Thr Leu Cys 260 265 270

Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val Gly 275 280 285

Gln Leu Phe Thr Phe Ser Pro Arg Arg His Trp Thr Thr Gln Asp Cys 290 295 300

Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met Ala Trp 305 310 315 320

Asp Met Met Met Asn Trp

<210> 74

<211> 315

<212> PRT

<213> Artificial

<220>

<223> Synthetic Construct

<400> 74

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205

Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Ile Glu Gly 210 215 220

Arg Gly Ile Pro Asn Ser Ser Ser Val Pro Met Ser Thr Ile Pro Lys 235 230 235

Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro Gln Asp Val 245 250 255

Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr Leu Leu Pro 260 265 270

Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys Thr Ser Glu 275 280 285

Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys Ala Arg Arg 290 295 300

Pro Glu Gly Arg Thr Gly Ile Gly Asn Ser Ser 305 310 315

<210> 75

252

<211> <212> PRT

<213> Artificial

<220>

<223> Synthetic Construct

<400>

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro 1 5 10 15 Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30 Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45 Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50 60Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80 Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95 Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110 Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125 Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160 Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175 Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190 Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205 Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 220 Gly Ser Met Ser Thr Ile Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn 225 230 235 240 Thr Asn Arg Arg Pro Gln Glu Phe Ile Val Thr Asp 245 250

Page 40

<210> 76

<211> 252

<212> PRT

<213> Artificial

<220>

<223> Synthetic Construct

<400> 76

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro 1 5 10 15

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu 20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu 35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys 50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu 115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu 165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr 180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala 195 200 205

Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg 210 220

Gly Ser Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val 235 230 235 240

Tyr Leu Leu Pro Arg Arg Glu Phe Ile Val Thr Asp 245 250